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ABSTRACT

This report on an experimental project in distance education via the ANIK-B satellite, which was undertaken by the University of Victoria in 1979-80, highlights in detail those aspects that could serve as components of a model for a similar effort, and incorporates the pertinent data obtained during a formal evaluation of the project. The report comments on the strengths and weaknesses of the satellite-based instructional system at the specific levels of administration and operation in distance delivery of university programs; assesses the success of the two education courses developed and produced by the project from the participant's viewpoint; assesses the technical viability of operating the satellite-based instructional system at the University of Victoria; and makes recommendations regarding the role of the satellite manager during the experimental period and in the future. The two courses presented, ED-B 435 "Supervision of Instruction" and ED-B 480 "Teaching Reading in the Primary Grades," are discussed in terms of the ad hoc model that evolved. Components of this model include the project team, course components, the course design procedures, field arrangements, and University of Victoria project administration. (Author/MER)

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S U M M A R Y R E P O R T

TOWARDS A MODEL FOR

SATELLITE-BASED INSTRUCTION

AT THE UNIVERSITY OF VICTORIA

Report on the ANIK-B Experimental Project
September 1979 to June, 1980

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June, 1980

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THE NATURE OF THE DOCUMENT

The Government of B.C. sponsored a series of experiments in distance education via the ANIK-B satellite during the 1979-80 academic year. The Division of Extension, University of Victoria had undertaken to develop, produce and evaluate two satellite-based credit courses in the Faculty of Education during this experimental period. The purpose of this document is to report on this experimental project; highlighting in detail those aspects that may serve as components of a model for a similar, possibly extended effort, in the coming years. This report will incorporate the pertinent data obtained during the formal evaluation of the University of Victoria ANIK-B project. The evaluation is necessarily of a formative nature. No attempt is made to make the findings generalizable to satellite-based courses outside the University of Victoria context. To summarize, the specific objectives of this report are:

- (1) to comment on the strengths and weaknesses of the satellite-based instructional system at the specific levels of administration and operation in distance delivery of University programs.
- (2) to assess the success of the two Education courses from the participants' viewpoint.
- (3) to provide some measures of the cost-effectiveness of the experimental program within the University of Victoria.
- (4) to assess the technical viability of operating the satellite-based instructional system at UVIC.
- (5) to make recommendations regarding the role of the Satellite Manager during the experimental period and in the future.

A. Introduction and Course Descriptions

The project operated from its outset with severe time and logistical restrictions.

The first course (Fall 1979) selected for a satellite-based delivery system was ED-B 435 "Supervision of Instruction".

The second course (Winter 1980) was ED-B 480 "Teaching Reading in the Primary Grades".

These initial course selections were made on the basis of Education Extension's strong interest in the delivery mode, the Course Instructor's personal availability and enthusiasm, and some informal feedback from the field that the content would be of use and generate a receptive student group in a short period of time.

B. Outline of the Model

The ad hoc model that evolved will be outlines under the following headings: The Project Team, Course Components, The Course Design Procedures, Field Arrangements, University of Victoria Project Administration.

C. The Project Team

1. Project Director/Cochairmen

1.1. Fall 1979 - Project Director with overall responsibility of academic component of the first course, ED-B 435. Dr. Yvonne Martin coordinated the course content, instructed in two sessions, provided links between classes and developed, administered and marked student assignments. Dr. Martin was given 3 units release time for her participation.

1.2. Winter 1980 - Cochairmen - Drs. Lloyd Ollila and Terry Johnson had overall responsibility for the academic component of the second course, ED-B 480. Their joint responsibilities were similar to Dr. Martin's.

2. Project Coordinator with direct responsibility for all aspects of the project excluding course content, specifically:

- Instructional design and administration on day-to-day basis.
- Coordination of University Extension participation.
- Preseminar production as required (e.g. videotapes) and production of on-air TV component.
- Liaison with academic staff and other internal and external individuals/committees re: satellite.
- Overall evaluation of project.

3. Support Staff

3.1. Curriculum Assistant: To assist the Project Director with course content matters.

3.2 Research/Media Assistant: To assist as required the above project team in all aspects related to both course content and delivery system.

3.3. Clerk/Typist: as required by Project Coordinator.

4. Field Associates: One individual in each centre had been commissioned as a Field Associate and has the following responsibilities:

- Attend all sessions of the course
- Maintain the comfort and effectiveness of the on-site classroom.
- Perform all on-site administrative functions including registration, attendance, administration of evaluation instruments under auspices of project coordinators, receipt and distribution of all support materials, and informing students of scheduling changes.
- Stimulate post-broadcast discussions.
- Lead pre/post session discussions.
- Maintain contact with the Project Coordinator.
- Conduct evaluation.

D. Course Components

The central course component was the 75 minute weekly TV seminar, supported by specially designed print materials and pre and post-session activities and discussion facilitated by the Field Associate.

1. TV Seminar: The weekly live seminar provided the core of the course. A unique characteristic distinguishing it from other telecourses was its interactive nature - with one way video and two way audio. The students could see and hear the instructor and could respond immediately through the satellite-based telephone link-up.

2. Print and Other Materials: The students were provided with a variety of support materials:

2.1. Course Print Materials - materials produced by instructors and recorded into a distance education framework by a academics and Project Coordinator in her role as Instructional Design Consultant. These were packaged into binder form to provide maximum flexibility.

2.2. Required Readings were also included in the binder.

2.3. Reproduction of all substantive graphics to be broadcast during the TV Seminar were included in the binder (to eliminate wasteful coping time and effort)

2.4. Supplementary Print and Small Format Media Materials were circulated among the group by the Field Associate.

2.5. Textbook and Study Guide - The winter 1980 course included a required textbook and study guide.

3. Pre and Post Session Activities:

3.1. The Pre-Session activities were generally of an administrative nature.

3.2. Post Session activities were related to the content of the seminar, facilitated by the Field Associate, having been provided with detailed instructions by the weekly lecturer. They included discussions, structured activities and small-format media presentations and discussion of text and study guide.

4. Non-broadcast sessions: Additional sessions were held as necessary under the direction of the Field Associates. During these sessions, exams were administered and further discussions of a post-session nature ensued.

E. Field Arrangements:

Instructional sessions were held every Thursday from October 4th through December 6th and January 17 through March 18, 1980 starting at 3:20 p.m. Pacific Time. Each session included instruction and discussion centered at the British Columbia Institute of Technology and broadcast live over the ANIK-B satellite between 3:30 and 4:45 p.m. (PST) to six centres, specifically;

1. Northern Lights College - Dawson Creek
2. North West Regional College - Terrace
3. New Caledonia College - Prince George
4. North Island College - Port Alberni, Gold River
5. East Kootenay College - Cranbrook

Students from an extensive feeder area (in some cases up to 100 kms away) convened at their respective colleges from 3:15 p.m. to 5:45 p.m. Pacific Time each Thursday.

F. University of Victoria Project Administration

The Director of Education Extension, Dr. R. Pearce, maintained overall responsibility for the budget. The Project Director/Co-chairmen (Course Authors) were directly responsible for the academic input of the course, whereas the Project Coordinator administered all other aspects, including the day-to-day operation. Given the severe time restrictions under which the course development took place, the reporting mechanism was fairly informal in nature. Most decision-making was done verbally in face-to-face meeting situations.

G. Student Evaluation:

Evaluation of student work in the course was based on attendance, participation and the successful completion of a selection of assignments, generally practical in nature, given by instructors. In the fall course, the Academic Director, in conjunction with instructors, reviewed anecdotal comments on student activities submitted by field associates and examples of student work to determine grades. In the winter course, two formal examinations were administered. Grading for the courses was on a regular basis. Grades awarded were A, B, C, D, F, and N. Upon successful completion of the course, students received $1\frac{1}{2}$ units of credit which could be approved as an elective on an education degree programme. With approval from the Faculty of Education, this credit could be applied towards a Masters programme.

PART TWO - EVALUATION PROCEDURES AND RESULTS

A. Evaluation Procedures

As stated previously, the evaluation was entirely of a formative nature; its goal to provide information for developing an operational model. All participants provided written and oral data, both of an anecdotal nature and in more structured forms. (see Appendix E) The principal written evaluation instruments consisted of:

- A. Student pre and Post Tests (E1-4)
- B. Weekly Field Associate Checklist (E5)
- C. Weekly Instructor Checklist (E6)
- D. Project Coordinator Log (E7)

In addition, informal interviews on a person-to-person basis were conducted with the Project Team, the Field Associates and Instructors. The Directors of Education Extension and University Extension provided useful data. The Field Associates also participated in debriefing sessions.

B. Students' Profile

1. ED-B 435 - "Supervision of Instruction" (Fall 1979)

There were 54 students registered in this course (excluding the large Cranbrook auditing block).^{*} Of these slightly fewer than half are teachers, with the rest evenly divided between principals and other support personnel, for the most part consultants and administrators. Two-thirds of all practitioners are from the Elementary level, with the remaining third from secondary schools. Slightly less than half of the teachers and principals have been teaching for under two years, one quarter 3 - 5 years, and the remainder over 6 years.

The school size varied considerably from five teachers to 110, with the median of 19 teachers per school. The supervisory time also spanned a wide range from 5 hours per month to 100% of the time. The median was 35 hours per month.

Two-thirds of the students indicated they are currently enrolled in a degree program. They are fairly evenly distributed by sex. A majority are in the 31 - 40 years age range.

A majority of the students had not taken any related courses previously. Only half had done some reading in the subject prior to enrolling in the courses but over 80% stated that the relevance supervisory function to their present responsibilities was high. Nor had they ever taken any courses (academic or other) that had been taught other than in the traditional face-to-face situation.

2. "Teaching Reading in the Primary Grades" (Winter 1980)

There were 44 students who completed the pretest for this course. The course enrollment subsequently increased to 53, of which 70% were taking the course for credit. One-quarter had been enrolled in the Fall course. Almost all the students are practising teachers, mostly in their thirties. In this course, women outnumbered men two to one. Over 1/3 had been teaching two or less years and almost two-thirds of them are involved in the primary grades. The remaining practitioners are intermediate teachers.

Excluding those who were registered in the fall course, only 20% of the students had been previously involved in a non-traditional teaching/learning situation. In addition, most of them had no previous personal experience with A/V media.

It is interesting to note that a significant group of the students (41%) indicated that they had a "slightly negative" attitude towards speaking on the telephone.

C. Evaluation Results

1. Overall Ratings

Given the nature and purpose of this study, the evaluation results from the two courses will be reported by topic together. Whenever important differences are visible, these of course, will be noted.

No attempt is made to interpret these results in Part Two.

From the students' point of view the two courses were definitely successful in reaching their respective stated objectives (as outlines in the first session) and in the print materials. Over 85% of them, in each case, indicated a rating of 5 or 4 on a five point scale.

A large majority of the students (ED-B 435 - 87.5%; and ED-B 480 87.0%) also indicated that the courses were successful in meeting their own personal objectives. Further indications of the overall favorable reaction was the student response to the following statements:

1. I would consider taking another course from UVIC via satellite.
2. I would suggest to a colleague that she/he take such a course.

Almost all respondents (over 90% in all cases) replied in the affirmative to these queries.

2. On the Course Components

Both "Supervision" and "Reading" were rated highly on student attentiveness and instructional quality in comparison to the traditional face-to-face teaching/learning situation. However, from the students' point of view, the audio interaction between instructor and students was clearly unfavorable compared to a traditional course (on a 5 point scale). This is particularly evident in the "Reading" course.

Over half of all students thought the Print Materials, in a similar comparison, were 'better' or 'much better', with most of the remainder of the opinion that they were at least of equal quality. Complimenting this positive quality rating, the Print Materials were perceived as quite useful. More than three-quarters of all students in both courses gave them a 5 or 4 on a five point scale.

Furthermore, other major instructional components (pre and post-session assignments and discussions, text, supplementary readings/study guide and student assignments) were equally well-received. Not one of these 6 major components was rated less than 3 or above on a five

point scale by 75% of the respondents (with the single exception of the Supervision student assignment which was given a 67% favorable rating).

The TV Seminar as the core of the instruction design model achieved a favorable response. As noted above, the attention level was quite high. Its' quality was in general also rated positively by the student in both courses. (the quality of the still graphics from the course to the second was perceived as markedly improved by the students) as was their frequency.

The other major aspect of the instructional model was the Field Associate. The students felt these facilitators (see role description on pg. 2) were crucial to the course, as is indicated in the following table. This is particularly striking in the "Reading" course.

The responses from the Field Associates, as indicated in their weekly checklists and verbally, was also favorable. They perceived of their role, both in its administrative and instructional functions, as useful and rewarding.

All but one of the ten expressed a desire (entirely unprompted) to be involved in the future.

One of the major features of these courses was the participation of a number of different instructors. The students were asked what their preference would be in this aspect, if such a course were repeated. Almost all the students were of the mind that at least two or three different instructors would be preferable.

3. Student Participation

The reaction to the level and type of student verbal input was mixed. As noted previously, the audio interaction between instructor and student was rated unfavorable in comparison to a face-to-face course.

One-third of the "Supervision" students and one-fifth of their "Reading" counterparts stated that they did not speak to the instructor at all.

Only the "Reading" students were queried as to whether they felt there was sufficient interaction between instructor and students. A majority (56%) were of the opinion that there was "Too Little", whereas one-third of the remainder chose "The Right Amount". The others were undecided.

There is a dramatic difference in the individual students' verbal input to the post-session discussion. Over three-quarters of the students for both courses stated that they participated in this discussion either "quite frequently" or "a number of times".

In fact, the students thought highly of the value of the respective courses in their professional development as supervisors and/or teachers.

4. Other Instructional Aspects

There was general agreement by the students, given the requirement of 39 contact hours for a $1\frac{1}{2}$ unit credit course, that each session was the right length. Most of the others felt each in class session was too short.

There was mixed reaction by the students to the out of class time required. The "Reading" students on average were spending 3 - 4 hours per week on homework. In contrast, the "Supervision" students were spending an average 2 hours of preparation time. Therefore, over 90% of the latter group were of the opinion that the workload was reasonable for a 4th year $1\frac{1}{2}$ credit university course, whereas the former group were divided - 40% were in agreement, while 56% felt there was too much work.

The largely positive attitude "towards television as an instructional tool" expressed in the pretest increased somewhat in the post-test (from 70% to 87%) on the part of the "supervision" students and remained quite constant by the "reading" students. The favorable opinion of ANIK-B satellite as the delivery system was fairly constant in the latter (at 80% choosing "an excellent idea" or "has positive applications"). This measure rose from over 80% to over 90% in the former group of students.

5. Student Evaluation

The ED-B 435 students were assigned a major paper as the principal component of their mark. The ED-B 480 had a midterm quiz, final examination and a term paper to complete.

Both Dr. Martin and Dr. Ollila expressed the opinion that the ANIK students did at least as well as their on-campus counter-parts in regard to marks.

6. Technical Aspects

The College receiving sites varied widely in their physical set-up. However, there was very little feeling on the part of the students that this had any effect on the instructional quality, with over 90% of them noting that the rooms were "adequate as a classroom."

There was a total of 20 on-air sessions during the 2 courses. Five centres were involved in each course, giving a total of 100 possible video and audio interruptions. In fact, the video was lost (for more than 2 minutes) three separate times (to one centre only on each occasion), for a total of 3%. The audio was interrupted (in one form or another) on 10 separate occasions with one or more of the centres for a total of 10% of the time.

PART THREE - RECOMMENDATIONS

The recommendations advanced below are partially derived from the evaluation data analysis and partially from the experience of developing and conducting the experimental project of two University-level satellite-based courses, as described in some detail in this Project Report.

The recommendations are categorized into the following subtopics:

- A. General Remarks
- B. On the Course Components
- C. On the Management and Delivery
- D. On the Technical Aspects

There is no attempt to make these recommendations exhaustive or to present only those which might be taken as the consensus view of all members of both Project Teams.

A. General Remarks

1. Notwithstanding this disclaimer, there appears to be consensus by all levels of participants, both at the University of Victoria and in the field, on the overall effectiveness and viability of the model of the satellite-based instruction as developed and implemented by the Project Teams during the 1979-80 ANIK-B experimental period. It is therefore recommended that the core elements of the model be implemented (with the suggested amendments and required course-specific adjustments) for upcoming University of Victoria satellite-based credit courses. The basic components of the model would also seem to have application in the non-credit program area.
2. It appears to be in the cognitive domain that the most positive learner outcomes are centered. Therefore, it is recommended that the course considered for satellite-based instruction have a high ratio of cognitive skills to be taught. In addition, although there can be little doubt that the instructional medium would also be quite effective in the affective domain, the level of performance required may be outside the range of a majority of instructors.
3. The workload of the key personnel will of necessity vary with

planning time available, complexity of course material presentation, field centres to be served, support staff, among many other valuables.

As it stands now, the following guidelines may be recommended:

- Instructor - for a 1½ unit course allow 1 - 3 units release
- for a 3 unit course allow 4 units release
- Instructional Designer/Producer
 - for a 1½ unit course allow 3 - 4 days/week
 - for a 3 unit course allow 4 - 5 days/week

4. It is difficult to make many potentially accurate statements regarding the budgeting of satellite-based courses; since it is dependent on too many course-related factors, even apart from the expenses incurred in travelling to the British Columbia Institute of Technology weekly. Both the severe time constraints and the developmental costs had a major impact on the final overall cost of this experimental program. No final figure is available at this time. It appears, on initial assessment that the per student cost in dollars for the experimental period will be higher than for a traditional off-campus course. The revenue, of course, is generated solely from student tuition fees. At present, the off-campus student is charged the same fee as the campus student. It is recommended that this amount be reassessed in light of the special benefit off-campus credit students receive, especially in respect to interactive satellite. Consideration should also be given to recovering 100% of the support material production and distribution cost --- a principle not able to be put force during the experimental period. (Since this amount could not be accurately determined at course commencement when the student material fees must be assessed.)

5. The number of students will obviously vary considerably from course to course and field centre to field centre. However, the following guidelines are recommended (assuming the present instructional model):

- The minimum number of students per centre should be 3; the maximum 20.
- The minimum number of centres served per course should be 3, the maximum 6 or 7.
- In a credit course, at least 3 students or 40%, whichever is greater, should be registered for credit.

6. Sufficient lead-time must be allowed to develop the best possible course and permit the requisite amount of field preparation, instructor orientation and print and non-print materials development. The minimum time required in selection of course and personnel is three full months prior to the first on-air transmission. Again, it should be emphasized that more than one course could be planned during this time period without extending the required lead-time to any degree.
7. Special attention must be given to advertising the courses available in the field with sufficient lead-time and to obtain maximum effectiveness in reaching the target audiences.

B. On the Course Components

1. The basic course components, as described in some detail in Part One are:

- A weekly TV seminar via satellite
- Print and Other Support Materials
- Required Readings (and possibly Text)
- Non-Broadcast Sessions.

The evaluation indicated that, by and large the composition of and balance between these basic components resulted in successful courses. Therefore, the continuation as outlined of these basic elements is recommended with the following adjustments.

The TV Seminar portion might be expanded to one and half hours weekly and over 12 weeks for a 1½ unit credit course for a total of 18 hours on-air interactive seminars.

That at least 50% of the pretaped materials be "in the can" prior to the first TV Seminar.

Since it is clearly a different teaching/learning situation from the traditional face-to-face, a substantial amount of instructor approach is acceptable if:

- a. Some sort of screening procedure is adopted
- b. All instructors take part in orientation sessions including in-depth discussion with the instructional design personnel and a practise session and debriefing.
- c. Consideration should be given to developing a manual on satellite based teaching for instructors.

Up to ten minutes of flexible instructional time should be built into each TV Seminar in order to encourage spontaneity by instructor and student alike.

2. The interaction between instructor and students was one of the strengths of the instructional model. Therefore, some structured interaction should be built into each TV seminar. It is suggested that such interaction can take the following form:

- Off-air exercises with feedback from each centre (10-15 mins)
- Instructor initiated questions directed to a specific centre and/or student.
- Student- initiated questions and comments
- Student-to-student interaction

3. Since the print materials proved to be functional in content and format, each satellite course should have substantial student materials included. It is recommended that:

- The session Outlines be blocked out somewhat differently
- The students should not receive a time breakdown of the TV Seminar. This will increase instructor flexibility and lessen perceived anxiety. (The project team should work out private blocking with each instructor.)
- All print materials should continue to be in a standardized form from Session to Session
- At least 2/3 of all graphics to be used during the TV Seminar should be included in the print material package

The required readings proved functional and provision of these in the student materials should be continued. If there is a worth-while text (and study guide), then these seem to provide useful guidelines and structures for the student.

4. The Field Associates were clearly perceived by all levels of participants as a key component in the success of the courses. It is recommended that the role of Field Associate be maintained, that they be given additional instructional responsibilities and that they be reimbursed appropriately for these functions.

5. The off-air sessions (pre and post) certainly became integral and essential components of the entire learning system. In respect to this

time, it is recommended:

- That the pre-session be 10 - 15 minutes each week and be time available for administrative matters and for distribution of materials.
- That the instructional role of the Field Associate be expanded and clarified and that the Field Associate continue to facilitate the post-session discussion and activities with explicit instructor directives.
- The post-session should be 50 minutes long each week immediately following the TV Seminar.

6. It is recommended that the post-broadcast sessions include a variety of the following elements under the direction of the Field Associates:

- Structured discussions expanding the topics discussed in the TV Seminars
- Group exercises
- Audiotapes and other small format media materials
- Student presentations.

7. In order to meet the 39 hours of required contact time, it is recommended that one or more non-broadcast sessions take place, likely either at the mid-point, between Sessions 6 and 7 and/or after the final broadcast seminar. The content of these sessions could include:

- Expansion of key concepts introduced to date
- Introduction of additional material through Field Associates
- Quizzes or examinations
- Student presentations
- Outside lecturers at the local level suggested by each centre and approved by the instructor.

8. Thus, in summary, it is recommended that each 1½ unit course consists of 13 sessions of 3 hours:

- One Student/Instructor Orientation
- Ten Instructional Sessions
- A Summary Class
- At least one Non-Broadcast Session (Mid or Final)

C. On the Management and Delivery

1. As stated earlier, the management structure, given the nature of the experiment (especially in particular its timetable for development and delivery), remained fairly informal and flexible, within agreed upon general guidelines. It seems almost too obvious to mention, that entrenchment of this delivery mode at the University of Victoria would

require a more defined management system, so that it might better articulate with the other distance education program offered through University Extension.

2. The delivery of courses through distant modes, in order to meet the special development concerns and address unique student needs most appropriately, requires the project team to exercise a reasonable degree of flexibility within agreed upon budgetary guidelines. It is recommended that the current procedures in operation for other modes of distance delivery should be readily applicable for satellite-based deliveries.

3. Formative evaluation, in any new instructional model, is of major importance. It is suggested that the formative evaluation of this delivery system be expanded in order to continue the process of model refinement. Special emphasis should be paid to those areas which were underexplored or only recognized during the experimental project.

4. One concern which was raised by Field Associates and some individual students was the lack of adequate research facilities to provide data for the assignments. Therefore, it is recommended that particular attention be given to this aspect of course delivery to the field via ANIK-B. The method adopted of providing a few supplementary books distributed by the field associated did not prove to be entirely adequate to meet student needs in this regard.

5. If the University of Victoria project team continues to use British Columbia Institute of Technology facilities, then the following logistical changes might be useful in cutting down on an exhausting and potentially stressful situation (the travel):

- All members of project team who go to B.C.I.T., especially instructors, should not have any totally inflexible commitments (E.G. class at UVIC) on the production day
- During the winter months, a backup to travel by charter plane should be planned.
- Exploration of a more time efficient ground transportation airport - B.C.I.T. - return should be looked into
- The availability of a few spares Victoria-Vancouver-Victoria on production day should be made known to university community so that cost-sharing of charter might be arranged.

D. On the Technical Aspects

Given the experimental nature of the project, the technical aspects functioned surprisingly well, at least during UVic production time. However, some suggestions could be advanced.

1. It is recommended that the audio system (when operating over the satellite) be checked in sufficient time prior to all sessions, that alternative arrangements can be made when malfunctioning.
2. It is suggested that if use of delivery mode is expanded and when replacement of UVic equipment takes place, that new equipment be more perfectly compatible with the satellite transmission centre.
3. Consideration might be given to upgrading the audio signal.

PART FOUR -- THE ROLE OF THE SATELLITE MANAGER

GENERAL REMARKS

In early 1979, the B.C. Government awarded the overall project management of the ANIK-B distant learning experiment to the Faculty of Continuing Education at the British Columbia Institute of Technology. The satellite transmission facility was located at the Institute.

In effect, the University of Victoria project team operated independently of the British Columbia Institute of Technology except in regard to:

- Use of the ANIK-B facility and technical staff during the T.V. Seminar component of the University of Victoria instructional system.
- Maintaining general coordination especially in respect to the field centres. In fact, the University designated its own field associates who liaised as required with the college personnel.

Another major difference in the University of Victoria project model was the presence of the Project Coordinator in the role of producer; whose responsibilities included the design and production of both pre-packaged and live segments of the satellite transmission.

The independent functioning of the program originators allows for a maximum degree of experimentation with potential satellite based instructional designs and a relatively high degree of adaptability to the needs of their specific client group by the individual program originators.

The fact that the British Columbia Institute of Technology Project Management personnel have direct responsibilities in the programming area resulted in a high degree of appreciation of the needs of program producers, and the ability to anticipate and correct weaknesses in the technical facilities.

A number of potential difficulties of the system can also be identified.

Communication between program originators and the British Columbia Institute of Technology was on an ad-hoc basis and therefore, there was an absence of established lines of information flow between the "Outside" program originator and the various institutions involved in the experiment. This presented two major sets of problems:

- The nature of the relationship of the University of Victoria

and the Regional Colleges in their role as field centres was vaguely defined and resulted in some crossed lines.

- The changes at B.C.I.T. in respect to the technical staff, administrative procedures and technical facilities (and these were substantial during the experimental period) were not passed on to the University of Victoria as an "outside" program originator on any systematic ongoing basis.

The scheduling of courses, other timetabling considerations and the physical structure of the ANIK-B classroom were arranged principally to meet B.C.I.T.'s instructional needs. This presented a number of difficulties for the University of Victoria as an "outside" program originator.

RECOMMENDATIONS

1. British Columbia is now in the vanguard of using satellite technology in opening up educational opportunities to its dispersed communities. In order to maintain this lead and improve on both an instructional and technical level, it is recommended that the Satellite Manager undertake a well-defined, on-going program of liaison with similar projects in other jurisdictions and that the Satellite Manager set minimum standards of quality of presentation (not content) and ensure that the evaluation functions are carried out.
2. The question of access to satellite network must also be addressed. It is recommended that the Satellite Manager develop general guidelines regarding delineation of program responsibilities to programming institutions. It should be recognized that the programming institution bear the responsibility for needs assessment after such division of programming responsibilities. (see appended statement by Dr. Glen Farrell, Director University Extension, on "Utilization of an Interactive Microwaves/Satellite System by the University of Victoria") (Appendix H)
3. It is recommended that the Satellite Manager establish a Program Originator's Coordination Committee which would have three major function:
 - 3.1. To facilitate information sharing regarding the modes of presentation, their strengths and weaknesses. This committee might want to undertake the development and coordination of a training program for instructors who will be teaching via ANIK-B.

- 3.2. To keep all parties up to date and vet changes in the technical aspects of the operation, current field arrangements, and other administrative issues of mutual concern. (e.g. distribution of materials)
- 3.3. To coordinate timetabling.
4. A formal on-going system of liaison between "outside" program originators and Regional Colleges should be established. This is particularly crucial for those program originators who operate with their own field personnel. The number of such institutions will likely increase with the increase in satellite course offerings. All program originators should be included as necessary in regularly scheduled program originator-College liaison meetings. (The one meeting we had seemed to be very useful to all concerned.)
 - 4.1. Advertising and promotion of both credit and non-credit courses should be coordinated by this committee.
 - 4.2. This committee could fill the role as a sounding board for program originator's ideas for potential courses.
 - 4.3. The issue of standardization of facilities in the receiving centres could also be explored.
5. Credit transferability among programming institutions can be arranged on an individual course basis. The transferability of credit is an issue which should receive special attention.
6. The whole question of means of distribution of support materials should be looked into by the Satellite Manager and/or an appropriate committee.
7. The role and responsibilities of all personnel both at the Satellite Management and technical end and at each of the participating program originators and receiving institutions should be clearly understood by all.
8. The timetable should be drawn up so that each "outside" program originator be allowed one half hour of "setting up" time prior to their on-air transmission, in order to permit sufficient leeway to adjust the facilities to meet the varying needs of each instructional design.
9. The immediate instructor/student interaction is clearly one of the strengths of the satellite teaching/learning system. In order to fully enhance this aspect, consideration might be given to the following changes in the audio system. Instead of the telephone receivers, each student could be wearing a lightweight headset with a speaker (a la TV Floor Manager's). This would result in less disruption in communication.

SUMMARY STATEMENT

This experimental project was both a complex one to plan and implement and an exhilarating experience of which to be part for all members of the Project Teams. There is no question in our minds that we learned an incredible amount in a very short time and clearly realize that we have begun to scratch the surface in respect to the potential within satellite-based instruction.

Following the two Education courses 2 short term satellite programs were undertaken in a non-credit 6 hour workshop in Public Administration and a New Student Information Seminar sponsored by the Admissions Office. Both of these programs also provided valuable learning experiences in satellite delivery.

My special thanks to the invaluable support from University Extension and Education Extension.

As Project Coordinator I hope this document will be useful to those who might be working with satellite-based course delivery at UVic in the future.

APPENDICES

- A. EDB435 COURSE PLANNING TIMETABLE & NOTES
- B. COURSE DESCRIPTIONS
 - 1. EDB435
 - 2. EDB480
- C. SAMPLE VIDEOTAPE
- D. SAMPLE PRINT MATERIALS
 - 1. EDB435
 - 2. EDB480
- E. FORMATIVE EVALUATION INSTRUMENTS
 - 1-4. STUDENT
 - 5. FIELD ASSOCIATE
 - 6. INSTRUCTORS
 - 7. PROJECT COORDINATOR
- F. SUGGESTED BUDGETARY GUIDELINES PER 1½ UNIT COURSE
- G. NEW DIRECTION FOR EXPLORATION
- H. UTILIZATION OF AN INTERACTIVE MICROWAVE SATELLITE SYSTEM
BY THE UNIVERSITY OF VICTORIA by DR. G. FARRELL